

Organic II

sheet

5 parts
EPU

- 1 Aromatic HC's ✓
- 2 Aromaticity ✓
- 3 Reactions of Benzene ✓
- 4 Arenes ✓ Alkyl benzene
- 5 Nitro HC's ✓
- 6 Aryl halides ✓
- 7 Aromatic amines ✓
- 8 Diazotization ✓
- 9 Aldehydes and ketones ✓
- 10 Carboxylic a' ✓
- 11 Sulphonic a' ✓
- 12 Phenols aromatic compound contain OH ✓
- 13 Polycyclic, polynuclear ✓ Sheet ✓
- 14 Carbohydrates.
- 15 Amino acids and protein ✓

Sheet ✓

Sheet ✓

Nomenclature
Synthesis
Reactions

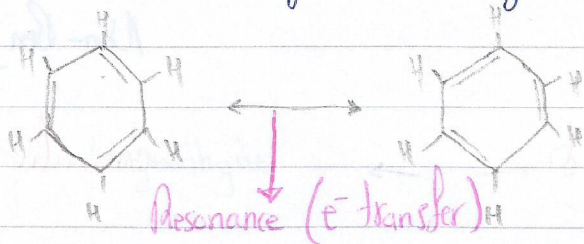
Pec 1

①

Aromatic HC's

- New class of aromatic compounds composed of H only (6C+) (e.g. fullerene)

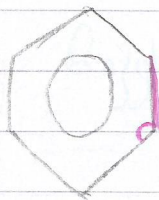
→ Benzene



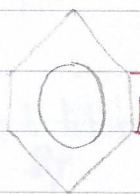
(1.39 Å)

Double bond 1.33 Å
Single 1.56 Å

- Hexagone
- Hybrid
- Circle of $6e^-$



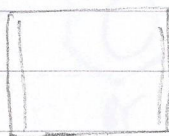
- each bond 1.39 Å
- each angle 120°
- C_6H_6



Br/Cl_2
 $KMnO_4/H^+$

N.R.
N.R.

Because they are very stable as they have stabilization energy



→ 1,3-cyclobutadiene

no resonance



(no of $\pi e^- = 1/2$)

Aromaticity (Criteria of aromaticity) 81

Huckel's rule: No of $\pi(pi) e^- = 4n + 2$ # n is integer

Aromatic

Anti aromatic

Non-aromatic

- Cyclic

- Sp^2 (= 4 + 4)



- Sp^2



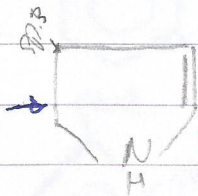
- Even

- num of π bond = odd

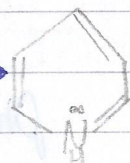
- Sp^3



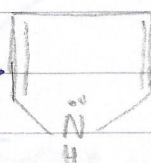
→ (N, O, S) → Sp^2



aromatic
non



aromatic



aromatic

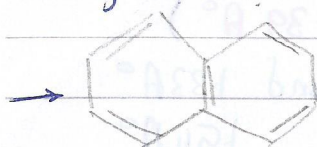
Heterocyclic → cyclic compounds contain at least one atom that is not carbon

2

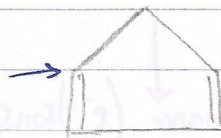
Aromatic compounds

Benzenoid

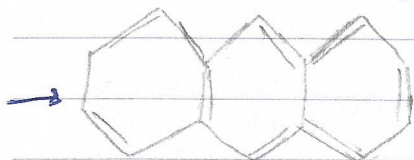
Non-Benzenoid



aromatic benzenoid

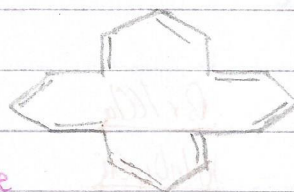


aromatic



naphthalene

Annulenes $\Rightarrow$ Monocyclic, fully conjugated

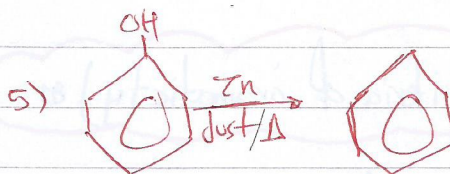
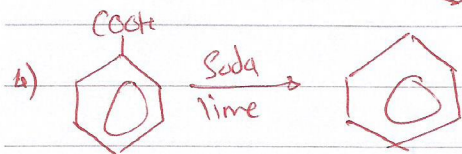
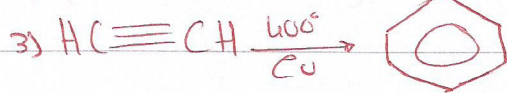


(16) annulene

Sources of Benzene $\Rightarrow$

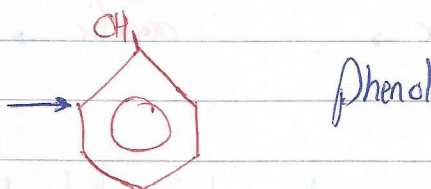
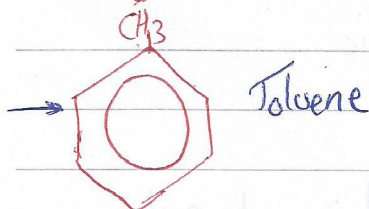
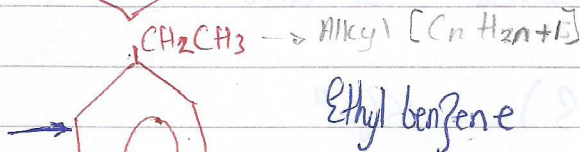
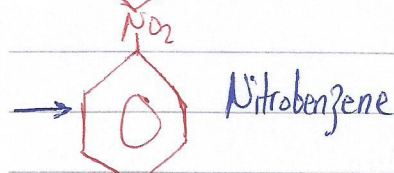
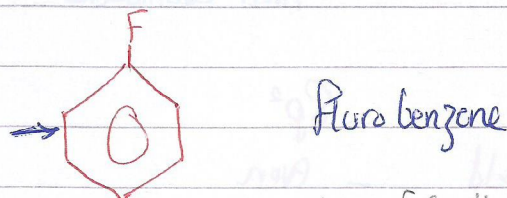
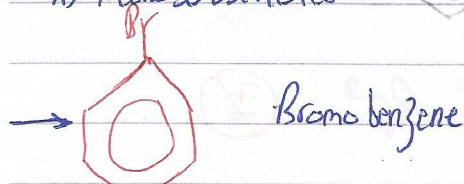
1) coal tar

2) petroleum

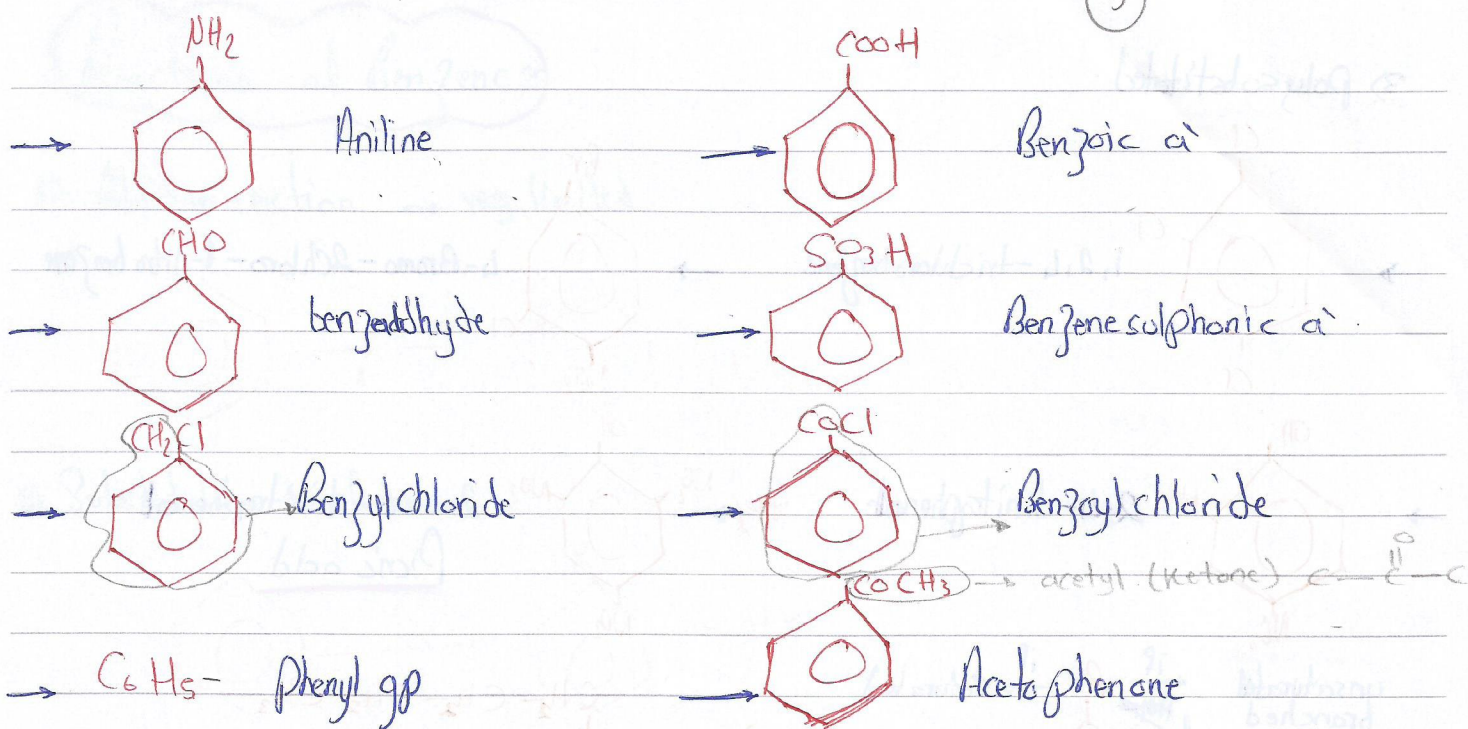


Nomenclature $\Rightarrow$

A) Monosubstituted



3



B) Disubstituted

